Ethnomedicobotany of *Rajbanshi* community in the Duars region of Jalpaiguri District, West Bengal, India

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Abstract

The Rajbanshi community in Duars of Jalpaiguri district of West Bengal is traditionally using different kinds of plant parts as medicine. Present article discussed the medicinal plants used by them including different formulations. Leaves are the most used plant parts. However, their traditional knowledge is in danger as the facilities of modern civilization is spreading fast in the area.

Key word: Ethnobotany, Medicinal Plants, Rajbanshi Community, Duars, Jalpaiguri District

INTRODUCTION

Northern part of the state of West Bengal, India is covered with rich vegetation, mainly forested and quite a good number of tribal communities are living there since an unknown period of time. In Terai-Duars region some communities like Mech, Rabha, Toto, Santal, Oraon, Lepcha, Sherpa, Dukpa and Rajbanshi (Mukherjee *et al.* 2007; Sarkar 2011; Debnath *et al.* 2017) are living with quiet harmony in an forested environment. In West Bengal, Rajbanshi community has been placed in the list of scheduled caste (SC) category (www.rajbanshipride.blogspot.in/2016/02/social-issues-scheduled-caste-status-of-rajbanshi).

The traditional botanical knowledge of Rajbanshi community is very rich (Roy & Das 2015; Debnath *et al.* 2017). They use plants in almost all aspects of their life. While Roy & Das (2015) discussed the preparation of some of their special type of food-items, Debnath *et al.* (2017) discussed different aspects of their traditional foods.

Like the people of most of other communities, people of Rajbanshi community also uses many plant based traditional medicines to treat/cure their different diseases. However, Sanyal (1965) emphasised that ancient Rajbanshi people did not have knowledge about the medicinal uses of plant. So, when they were suffering from different types of physical discomforts of ailments like fever, cold cough, Andha sula (Night Blindness) etc, then at first they applied some “*Mantra*” expecting that the God will cure them through their enforced *Mantras*. Later on, gradually, they started applying some plant parts (leaf, stem, bark, root etc) through trial and error method. Sometimes they were successful and gradually they developed their own mainly plant-based medical system. After this success, these techniques are now being used traditionally for generations to cure these diseases. As for example, during fever Rajbanshi people used some kind of “*Mantra*” with or without any plant-based medicine:

*“Hari ghor channi bati
 Kumar ghor dehari
 Tahate juria dinu
 Sho sho bati
 Tor bhoga nore gang-o
 Tor bhoga chore
 Tor bap dak pare
 Sonar chailon bati
 Ne hate korla
 Cholo zai shiber koilash nagia.”*

Till date the ethnomedicobotany of Rajbanshi people was not studied by any worker. As they are mainly concentrated in this Terai-Duars part of the country but are distributed in Indian states like assam, Arunachal Pradesh, Bihar and other countries like Bangladesh and Nepal (Sanyal 1965; Debnath *et al.* 2017).

STUDY AREA

All data are collected from the Rajbanshi dominating forest-villages in the Jalpaiguri district of West Bengal (India). The district is lying between 26° 16' N to 27° 0' N Latitudes and 88° 4' E to 89° 53' E longitudes with an average elevation of 75 m AMSL. It is surrounded by Bhutan in North, Bangladesh in South, Darjeeling Hills in the west and Alipurduar and Coochbihar districts on the east.

Figure 1. Location map of Jalpaiguri District [Source: <https://images.app.goo.gl/Mgf6YzP3NMadjGRz8>]

MATERIALS AND METHODS

The traditional societies are, in general, very much conservative. Entire methodology was decided keeping that in mind and involving the people of the community in the entire exercise as it was followed by us in 2017 (Debnath *et al.* 2017). The survey was conducted during March 2017 – March 2019.

Collected voucher specimens were processed into mounted Herbarium sheets and will be deposited to the NTFP Museum, Forest Department, Govt. of West Bengal, Sukna, Darjeeling, West Bengal. For the entire process Jain and Rao (1977) and Das (2018) has been followed. All the plant names and their family delimitations are checked in www.theplantlist.org.

RESULT AND DISCUSSION

Medicinal plants are used for cure of several diseases. Rajbangsi tribal people used many process of medicine preparation & used several plant parts for the preparation of medicine. In Table 1, formulations of medicines, local and scientific name of plants, used plant parts, ratio of applied medicine and the names of diseases they treat are presented.

Table 1. Medicinal plants used by Rajbangsi people of Jalpaiguri District

Sl. No.	Formulation in local name	Scientific name	Parts used	Preparation	Administration	Disease cures
1.	Tulshi, Jol (water)	<i>Ocimum tenuiflorum</i> L. [Labiatae]; <i>D. Deb-</i> 320	Leaves	2 leaves squeezed in c. 8 ml of water	Taken orally	Fever
2.	Aarahar	<i>Cajanus cajan</i> (L.) Millsp. [Leguminosae]; <i>D. Deb-</i> 421	Leaves	Extract in water	1 spoon in empty stomach in morning until cures	Jaundice
3.	Ghritokumari	<i>Aloe vera</i> (L.) Burm.f. [Xanthorrhoeaceae]; <i>D. Deb-</i> 332	Leaves	Extract from leaf-jelly	10 - 15 drops on scalp	Hair fall
4.	Gulancha	<i>Tinospora sinensis</i> (Lour.) Merr. [Menispermaceae]; <i>D. Deb-</i> 520	Stem	Extract from crushed stem	½ cup in empty stomach	Diabetes
5.	Basok, Tulshi, Modhu (honey)	<i>Justicia adhatoda</i> L. [Acanthaceae]; <i>D. Deb-</i> 408. <i>Ocimum tenuiflorum</i> L. [Labiatae]; <i>D. Deb-</i> 320	Leaves	Extract in little water + honey	2 spoon, twice or thrice daily	Cold & cough
6.	Aam holud	<i>Curcuma longa</i> L. [Zingiberaceae]; <i>D. Deb-</i> 233	Rhizome	Paste in water	1/3 cup twice or thrice daily	Cold cough
7.	Neem	<i>Azadirachta indica</i> A. Juss. [Meliaceae]; <i>D. Deb-</i> 425	Leaves	Extract in little water	2 spoon in empty stomach	Skin disease
8.	Dhulpi	<i>Leucas zeylanica</i> (L.) W.T. Aiton [Labiatae]; <i>D. Deb-</i> 003	Leaves	Aqueous extract	1 spoon twice/ thrice daily till cures	Pain
9.	Ganda	<i>Tagetes erecta</i> L. [Compositae]; <i>D. Deb-</i> 067	Leaves	Juice of crushed leaf	8-9 drops applied locally	Antiseptic
10.	Nishinda	<i>Vitex negundo</i> L. [Labiatae]; <i>D. Deb-</i> 420	Leaves	Extract of crushed leaf	2 spoon daily; applied locally or consumed	Wounds, Jondis

Sl. No.	Formulation in local name	Scientific name	Parts used	Preparation	Administration	Disease cures
11	Vauti	<i>Clerodendrum infortunatum</i> L. [Labiatae]; <i>D. Deb- 303</i>	Leaves	Extract of crushed leaf	Applied locally	Wound cure
12	Erenda, Kola, Noon (salt), Chini (sugar)	<i>Jatropha curcas</i> L. [Euphorbiaceae]; <i>D. Deb- 032</i> . <i>Musa x paradisiaca</i> L. [Musaceae]; <i>D. Deb- 202</i>	Bulb, fruits	Crushed and extracted together	½ cup taken twice/ thrice daily	Dysentery
13	Manimuni, Golmorchi	<i>Centella asiatica</i> (L.) Urb. [Umbelliferae]; <i>D. Deb- 491</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Leaves, fruits	Crushed and extracted	1 spoon 2 or 3 times daily	Diarrhea
14	Athia kola, Golmorchi	<i>Musa x paradisiaca</i> L. [Musaceae]; <i>D. Deb- 202</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Stem, fruits	Crushed and extracted	1 spoon 2 or 3 times daily	Diarrhea
15	Peyara, Golmorchi	<i>Psidium guajava</i> L. [Myrtaceae]; <i>D. Deb- 080</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Immature fruits	Crushed and extracted	1 spoon 2 or 3 times daily	Diarrhea
16	Tetul, Golmorchi	<i>Tamarindus indica</i> L. [Leguminosae]; <i>D. Deb- 529</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Leaves	Crushed and extracted	1 spoon 2 or 3 times daily	Diarrhea
17	Kathol, Golmorchi	<i>Artocarpus heterophyllus</i> Lam. [Moraceae]; <i>D. Deb- 517</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Fruits	Crushed and extracted	1 spoon 2 or 3 times daily	Diarrhea
18	Paan, Aada	<i>Piper betle</i> L. [Piperaceae]; <i>D. Deb- 305</i> . <i>Zingiber officinale</i> Roscoe [Zingiberaceae]; <i>D. Deb- 223</i>	Leaves, stem	Crushed and extracted	1 spoon in the morning or SOS	Gastric
19	Anarosh	<i>Ananas comosus</i> (L.) Merr. [Bromeliaceae]; <i>D. Deb- 381</i>	Leaves	Extract of basal soft portion	½ cup in the morning	Wound cure
20	Kola	<i>Musa x paradisiaca</i> L. [Musaceae]; <i>D. Deb- 202</i>	Leaves	Squeezed juice	2 spoon applied locally	Dental wound
21	Nebu, Narkel tel [coconut oil], Jol	<i>Citrus aurantiifolia</i> (Christm.) Swingle [Rutaceae]; <i>D. Deb- 309</i> . <i>Cocos nucifera</i> L. [Arecaceae]; <i>D. Deb- 350</i>	Leaves	Leaf-extract with oil & water	½ cup in SOS	Headache

PLATE - I. A. *Colocasia esculenta*; B. *Centella asiatica*; C. *Musa x paradisiaca*; D. *Aloe vera*; E. *Ocimum tenuiflorum*; F. *Aegle marmelos*; G. *Vitex negundo*; H. *Justicia adhatoda*; I. *Citrus aurantiifolia*; J. *Cajanus cajan*; K. *Tinospora sinensis*; L. *Typhonium trilobatum*

Sl. No.	Formulation in local name	Scientific name	Parts used	Preparation	Administration	Disease cures
22	Holud	<i>Curcuma longa</i> L. [Zingiberaceae]; <i>D. Deb- 233</i>	Pseudostem	Extracted juice	2-3 drops in eye	Ophthalmia, Conjunctivitis
23	Nishinda, Nim, Malvog kola	<i>Vitex negundo</i> L. [Labiateae]; <i>D. Deb- 420</i> . <i>Azadirachta indica</i> A. Juss. [Meliaceae]; <i>D. Deb- 518</i> . <i>Musa x paradisiaca</i> L. [Musaceae]; <i>D. Deb- 202</i>	Leaves, stem	Extract	Applied on the body	Chicken Pox
24	Gom (flour scraps), Khorimati & Hukkkah (waterpipe) Jol	<i>Triticum aestivum</i> L. [Gramineae]; <i>D. Deb- 441</i>	Seed coat	Powdered	Applied locally	Scabies
25	Tulshi, Joba, Aam Holud, Noon	<i>Ocimum tenuiflorum</i> L. [Labiateae]; <i>D. Deb- 320</i> . <i>Hibiscus rosa-sinensis</i> L. [Malvaceae]; <i>D. Deb- 007</i> . <i>Curcuma longa</i> L. [Zingiberaceae]; <i>D. Deb- 233</i>	Leaves, flowers	Concentrated extract of all	3 spoon consumed and applied locally	Ring worm
26	Nebu	<i>Citrus aurantiifolia</i> (Christm.) Swingle [Rutaceae]; <i>D. Deb- 309</i>	Leaves	Dry crush	Inhale aroma on SOS	Vomiting
27	Alok lota	<i>Cuscuta reflexa</i> Roxb. [Convolvulaceae]; <i>D. Deb- 506</i>	Yellow stem	Extract with little water	½ cup taken orally	Profuse bleeding during delivery
28	Makla Bansh & Chun [lime]	<i>Bambusa tulda</i> Roxb. [Gramineae]; <i>D. Deb- 401</i>	Outer coat of stem	Scrapped to make a powder	Applied locally	Deep wound
29	Kalo kechrai	<i>Andrographis paniculata</i> (Burm.f.) Nees [Acanthaceae]; <i>D. Deb- 571</i>	Leaves	Made into paste	Applied locally	Burn spot
30	Gha chatar pata	<i>Typhonium trilobatum</i> (L.) Schott [Araceae]; <i>D. Deb- 439</i>	Leaves	Made into paste	Applied locally	Boils
31	Kochu	<i>Arum maculatum</i> L. [Araceae]; <i>D. Deb- 329</i>	Leaves	Made into paste	Applied locally	Infection
32	Sajina, Ashuni saakh, Oshun, Golmorchi	<i>Moringa oleifera</i> Lam. [Moringaceae]; <i>D. Deb- 200</i> . <i>Marsilea minuta</i> L. [Marsileaceae]; <i>D. Deb- 311</i> . <i>Piper nigrum</i> L. [Piperaceae]; <i>D. Deb- 234</i>	Stem, fruits	Crushed and extracted	1 Cup in the morning till cures	Anaemia

Sl. No.	Formulation in local name	Scientific name	Parts used	Preparation	Administration	Disease cures
33	Bansh	<i>Bambusa tulda</i> Roxb. [Gramineae]; <i>D.Deb- 401</i>	Leaves	Made into paste	Applied locally	Snake bite
34	Shukati	<i>Corchorus capsularis</i> L. [Malvaceae]; <i>D.Deb- 301</i>	Dry leaf	Made into paste	Applied locally	Wound with Singi fish
35	Nishinda	<i>Vitex negundo</i> L. [Labiateae]; <i>D.Deb- 420</i>	Leaves	Crushed and extracted	2 spoonful in the morning	Prevent whitening of hair, improves memory
36	Aam	<i>Mangifera indica</i> L. [Anacardiaceae]; <i>D.Deb- 198</i>	Gum from bark		Applied locally	Cracked foot
37	Kalo kochu	<i>Colocasia esculenta</i> (L.) Schott [Araceae]; <i>D.Deb- 512</i>	Stem	Made into paste	Applied locally	Gurguchia
38	Holud, Vui kumra, chhyaka	<i>Curcuma longa</i> L. [Zingiberaceae]; <i>D.Deb- 233</i> . <i>Cucurbita maxima</i> Duchesne [Cucurbitaceae]; <i>D.Deb- 312</i>	Rhizome, stem	Extract	1 cup SOS	Pet kamri [stomach-ache]
39	Paan	<i>Piper betle</i> L. [Piperaceae]; <i>D.Deb- 305</i>	Leaves	Extract	SOS	Flatulence
40	Bara Manimuni	<i>Centella asiatica</i> (L.) Urb. [Umbelliferae]; <i>D.Deb- 491</i>	Leaves	Extract	Taken in empty stomach in morning	Dysentery
41	Kaach kola, Chun, Modhu, Noon	<i>Musa x paradisiaca</i> L. [Musaceae]; <i>D.Deb- 202</i>	Fruits	Paste	Applied on forehead	Headache
42	Kena ghaas, Aada, salt	<i>Actinoscirpus grossus</i> var. <i>kysoor</i> (Roxb.) Noltie [Cyperaceae]; <i>D.Deb- 399</i> . <i>Zingiber officinale</i> Roscoe [Zingiberaceae]; <i>D.Deb- 223</i>	Root-stock, rhizome	Extract	1 spoon on SOS	Pain in the abdomen
43	Kesari ghaas	<i>Lathyrus sativus</i> L. [Leguminosae]; <i>D.Deb- 386</i>	Roots	Paste	Applied locally	Wounds
44	Aalu [raw, crushed]	<i>Solanum tuberosum</i> L. [Solanaceae]; <i>D.Deb- 377</i>	Tuber	Crushed raw	Applied locally	Burns
45	Hemkatsa	<i>Bryophyllum pinnatum</i> (Lam.) Oken [Crassulaceae]; <i>D.Deb- 363</i>	Leaves	Made into paste	Applied locally	Burns

Sl. No.	Formulation in local name	Scientific name	Parts used	Preparation	Administration	Disease cures
46	Muri [parched rice], Dhup [incense stick, white], Noon	<i>Oryza sativa</i> L. [Gramineae]; <i>D. Deb- 209</i>	Fruits	Mixed and powdered	2 Cups 2 or 3 times daily	Diarrhoea
47	Dhonia	<i>Coriandrum sativum</i> L. [Umbelliferae]; <i>D. Deb- 199</i>	Fruits	Powdered	1/2 spoon after meals	Indigestion, vomiting
48	Bel	<i>Aegle marmelos</i> (L.) Correa [Rutaceae]; <i>D. Deb- 319</i>	Fruits, seeds	Made into extract	Need to take regularly	Stomach problem
49	Dhutra	<i>Datura stramonium</i> L. [Solanaceae]; <i>D. Deb- 314</i>	Seeds	Powdered	Applied locally	Dog bite
50	Pui shaak	<i>Basella alba</i> L. [Basellaceae]; <i>D. Deb- 313</i>	Roots	Extract	2 or 3 times daily	Tuberculosis

Figure 2. Percentage of plant parts used as medicine by the Rajbangshi community in Jalpaiguri district of West Bengal

From this above table it is observed that majority of their traditional medicines are prepared from leaves and the least number of medicines prepared from flowers. Percentage of plant parts used as medicine by Rajbangshi community in Jalpaiguri district of West Bengal is shown graphically in Figure 2.

Out of the 50 formulations presented in Table 1, as much as 36 are with single species of plants. For the remaining 14 formulations they are using 2 – 4 plant species. Interestingly, except *Marsilea minuta* all other medicinal plants recorded during the present survey are angiospermic. And, only 13 of those are monocotyledonous. Apart from plant parts, the

record of the uses of salt, sugar and lime was used. In majority of the formulations water has been used to make extract, decoction, etc. Another tribal community, Mech, living in the same area, has developed better practice in formulation and preparation of medicine. Even, they prepare tablets sometimes with more than 10 species (Sarkar 2011; Sarkar & Das 2010, 2012). However, there is another probability as educationally Rajbanshis are more advanced and are also enjoying the facilities of modern civilization for a longer period. In such case may be their traditional medical knowledge is being affected by the allopathic systems.

On search, no written traditional document was available with them for medical treatments among the Rajbanshi people. So, their traditional knowledge of medicine in the study area was transmitted orally for generations. But, the extension of modern facilities through tea-planters' and through the activities of Government Forest Department people in the Terai – Duars region brought them closure to such facilities. It is also noticed that younger generation of Rajbangsi people have less amount of knowledge about their tradition. So, it is now extremely important to documentation of their all types of traditional knowledge, including medicinal, otherwise their traditional knowledge will lost completely within next few years.

CONCLUSION

Not only modern medical facilities, almost all other facilities of modern civilisation are available in most part of the northern districts of West Bengal. Regular medical camps by government and by NGO's also helping them to avail such facilities. Facilities of modern education through the establishment of numerous schools, colleges and universities are enlightening these people very fast. So, not only for Rajbanshi's or Mech's, but for all other traditional communities living in this area need to be surveyed immediately to record their all traditional knowledge for future scientific evaluation considering the benefits of the humanity.

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